MANAGEMENT PROBLEMS AND OPPORTUNITIES

GOAL I: Maintain or improve the water quality of the Big River basin.

Status: Currently, basin water quality is good in most streams. Most basin streams support diverse aquatic communities and are designated for recreation and irrigation. However, localized problems do exist; and water quality of many basin streams is at serious risk from a number of threats related to past mining.

Failure of poorly-constructed mine waste dams and erosion of unstable mine waste could damage water quality in many streams. Water quality in some streams was severely altered during past mine waste releases, which induced fishkills and extirpation of some benthic invertebrates.

Twenty-seven mine dams have been rated as high-hazard, unsafe, and in jeopardy of failing during a large flood or earthquake. Elevated lead levels in fish flesh have necessitated a fish consumption advisory on Big River.

Increasing urbanization of the watershed could negatively impact water quality in the lower basin. Inadequate sewage treatment could pollute surface water and reduce numbers of aquatic animals. Increased stormwater runoff would destabilize stream channels and increase soil erosion. Water quality throughout the basin is somewhat impacted by cattle grazing and other farming activities in riparian corridors.

Objective 1.1: Reduce or eliminate the threat of mine waste contamination of Big River basin streams.

- Encourage Federal agencies to help stabilize mine dams and stabilize or remove mine waste from basin floodplains.
- Provide USEPA and MDNR with comments on basin remediation plans and recommendations to protect or improve aquatic biodiversity and habitat.
- Encourage MDNR to implement best reclamation techniques for tailings dams, ponds, and piles.

- Inform STREAM TEAMs (Big and Meramec rivers) and the general public of the mine waste threat, encourage them to ask elected officials for action, and support their efforts, when possible.
- Continue to help the Missouri Department of Health in monitoring fish contaminant levels and publicizing fish consumption advisories.

Objective 1.2: Ensure that basin streams meet state water quality standards.

- Work with DNR and USCOE to review 404 and other permits, assist with the enforcement of existing water quality laws, and recommend measures to protect aquatic communities.
- Encourage soil and water conservation districts to include fencing, cattle watering pumps, and pond construction in cost-share programs.
- Oppose the establishment of landfills in areas that may contaminate basin streams.
- Continue to assist the Missouri Department of Health in monitoring fish contaminant levels.
- Work with county authorities to discourage unwise floodplain development.
- Encourage basin STREAM TEAMs to become certified as water quality monitors and to report illegal trash dumping to the proper authorities.
- Encourage and assist STREAM TEAMs and Operation Clean Stream in removing trash from all major basin streams.
- Work with basin STREAM TEAMs to develop an education program to help reduce amount of trash entering basin streams.
- Educate public about basin water quality problems, create a list of public agency contacts responsible for protecting basin streams, and encourage the public to contact agencies for action on environmental problems within the basin.

Objective 1.3 Reduce negative effects of urbanization.

- Present workshops for land developers and local government agencies on the benefits of stormwater retention and stream greenways.
- Develop and advertise incentive packages and recognition programs for land developers that includes technical assistance and stream greenway, tree, and retention basin incentives.

- Encourage county authorities to establish adequate stormwater retention guidelines for residential and commercial developments.
- Encourage counties to purchase and remove flood-prone dwellings, from willing sellers, and convert properties into greenspace.

GOAL II: Maintain or improve riparian and aquatic habitats of the Big River basin

Status: Most sections of larger basin streams have good aquatic and riparian habitat. However, habitat in many basin streams are at serious risk from a number of threats related to past mining. Failure of poorly constructed mine waste dams and unstable mine waste could seriously damage habitats in several basin streams. On some stream reaches, chronic and acute contamination from mine waste has greatly altered habitat, increased sedimentation, and reduced benthic populations. Streambank erosion causes some habitat degradation, especially in tributary streams where land use encroaches upon the riparian corridor. Cattle grazing and hay and row crop production negatively affect riparian corridors. Increasing urbanization of lower basin streams reduces corridor width. Instream gravel dredging has caused instability in some streams.

Objective 2.1: Reduce stream channel instability, soil erosion, and sedimentation as well as maintain and improve riparian corridors.

- Encourage Federal agencies to help stabilize mine dams and stabilize or remove mine waste from basin floodplains.
- Encourage MDNR to implement best reclamation techniques for tailings dams, ponds, and piles.
- Provide technical assistance and recommendations about streams to all landowners, public agencies, and private contractors that request it.
- Establish a Stream Landowner Management Area (SLMA) within the Big River basin and design special voluntary management strategies and volunteer landowner incentive packages for stream frontage landowners.
- Obtain Jefferson County's permission to allow installation of tree revetments and other streambank erosion control techniques without expensive engineering studies.
- Oppose construction of dams on any basin stream that would threaten sensitive aquatic species or significant aquatic habitat.

- Work with DNR and USCOE to review 404 and other permits, assist with the enforcement of existing water quality laws, and recommend measures to protect aquatic communities.
- Contact, in-person when possible, all Big River SMBSMA landowners with inadequate riparian corridors and offer voluntary incentive packages.
- Present workshops to educate land developers and local government officials about stream dynamics and the importance of healthy riparian corridors.
- Encourage county authorities to establish adequate stormwater retention for residential and commercial developments.
- Encourage soil and water conservation districts to include fencing, corridor tree planting, cattle watering pumps, and pond construction in cost-share programs.
- Develop and advertise incentive packages and recognition program for land developers that includes technical assistance and stream greenway, tree, and retention basin incentives.
- Work with county authorities to discourage unwise floodplain development.
- Encourage counties to purchase and remove flood-prone dwellings, from willing sellers, and convert properties into greenspace.
- Inform STREAM TEAMs (Big and Meramec rivers) and the general public of lead mine waste and gravel dredging threats and encourage them to ask elected officials for action.
- Identify high priority stream areas for personal contacts to offer MDC assistance to landowners.
- Where possible, ensure all MDC areas have \geq 100-foot riparian corridors and assist other government agencies in establishing \geq 100-foot riparian corridors on their lands.
- Prioritize Big River sub-basins for voluntarily, targeted riparian landowners' incentive efforts which go beyond providing only technical assistance.
- Monitor corridor width along representative streams every 5 years.
- Establish at least one Stream Demonstration Area/county within the Big River basin.
- Enlist STREAM TEAMs to help plant riparian trees on private property.
- Investigate the possibility to provide sapling-size trees to city and county agencies wishing to improve riparian corridors and enlist STREAM TEAMs to aid in planting.

GOAL III: Maintain aquatic biodiversity in the Big River basin.

Status: Aquatic biological diversity within most of the Big River basin is relatively stable and typical of the Ozark Faunal Region. The basin contains several sensitive species that may need additional protection. Mine wastes negatively affect aquatic habitat and animals and threaten human health. Diversity of lower Big River and its Jefferson County tributaries may be depressed and will be challenged by increasing urbanization. Non-indigenous spotted bass continue to thrive in Big River and compete with indigenous fishes in lower Big River.

Objective 3.1: Monitor and assess aquatic populations and communities for biodiversity.

- -Sample representative sections of Big and Flat rivers, Mineral Fork, and Belew Creek, every 5 years, to monitor fish species diversity.
- Periodically monitor mussel populations, especially rare and endangered species, in basin streams.
- Determine status of belted crayfish populations and take steps to protect them, if necessary.
- Enlist help of STREAM TEAMs in aquatic invertebrate sampling and identification.
- Continue to monitor reaction of black bass populations to special regulations.

Objective 3.2: Improve aquatic habitat to maintain or improve aquatic biodiversity.

- Develop and implement voluntary programs for riparian landowners and developers, volunteer groups, and governmental agencies that aid in rehabilitation or improvement of land uses that affect stream habitat.
- Work with DNR and USCOE to review 404 and other permits, assist with the enforcement of existing water quality laws, and recommend measures to protect aquatic communities.
- Monitor representative sections of Big and Flat rivers, Mineral Fork, and Belew Creek, every 5 years, for changes in habitat quality.
- Encourage soil and water conservation districts to include fencing, cattle watering pumps, and pond construction in cost share programs.
- Oppose the establishment of landfills in areas that may contaminate basin streams.
- Inform the public of mine waste, gravel dredging, and other threats to basin streams and encourage them to ask elected officials for action.

- Oppose construction of dams on any basin stream that would threaten sensitive aquatic species or significant aquatic habitat.

GOAL IV: Improve recreational opportunities on Big River basin streams.

Status: Fishing access in the Big River basin is fair. However, boat launch facilities are poor at some existing accesses. Bank/wade fishing frontage is limited. Fish consumption advisories limit some anglers' enjoyment. Angler acceptance of special smallmouth bass regulations has been good; some anglers are calling for their expansion.

Objective 4.1: Improve access to basin streams.

- Assist in improving boating access at MDC's Cedar Hill, House Springs, and Morse Mill accesses.
- Assist in relocating and/or improving an MDC access in the Blackwell area (Jefferson-St. François counties).
- Encourage MDNR to improve boat/canoe and angler access on Big River at St. Francois and Washington State Parks.
- Work with local governments to purchase flood-prone property, from willing sellers, and establish greenways.
- Investigate the possibility of creating greenways along portions of basin streams.
- Investigate the possibility of increasing bank/wade fishing opportunities along the Mineral Fork, Fourche a Renault, Mine a Breton, Mill Creek, Terre Bleue Creek, Clear Creek, Cedar Creek, and Big River, in addition to those outlined in the Stream Areas Program Strategic Plan.

Objective 4.2: Improve or maintain sportfish populations.

- Monitor results of special black bass regulations on Big River through creel and electrofishing surveys.
- Increase the harvest of Big River spotted bass through angler education.
- Assist in rehabilitation or improvement of land uses that limit sportfish habitat.
- Assist in monitoring contaminant levels of Big River fish.
- Assess status of flathead catfish population in Big River.

- Assess status of channel catfish population in Big River after current catfish research determines effective sampling techniques.

GOAL V: Increase public awareness and appreciation of Big River basin streams.

<u>Status:</u> The Big River basin is a very valuable recreational resource. People use basin streams for fishing, boating, canoeing, swimming, and a variety of other activities. Basin streams contain high-quality aquatic communities that include populations of several sensitive species. Some basin streams are threatened by the remains of past mining activity or unwise land development. Habitat in all basin streams has suffered somewhat from unwise riparian corridor use. Despite its close proximity to St. Louis, the Big River basin is often unknown or not appreciated by those living outside the basin. Misunderstanding of lead problems has probably tainted some Missourians' views of the basin's value.

Objective 5.1: Inform the public about the types, amounts and quality of recreation available on Big River and tributary streams.

- Prepare and distribute a "Big River Basin Floater's Guide" brochure describing access, fishing opportunities, canoe liveries, and other recreational opportunities on major basin streams.
- Work with MDC interpretive staff to develop a Big River basin display, that includes representative flora and fauna, recreational opportunities available, basin lead problems, and visual presentations. This temporary display could be used at nature centers, zoos, etc. within the basin.
- Ensure annual reprinting of the "Fish St. Louis" brochure, which includes information on Big River.
- Develop a tri-fold, velcro-board display featuring recreational opportunities on major basin streams and encourage MDC employees to use it.
- Encourage and assist MDNR personnel at Washington and St. Francois State Parks in dissemination of fishing information to anglers.
- Continue to supply bait shops and canoe liveries with Big River fishing information.
- Promote Big River fisheries in the media and MDC's annual <u>Fishing</u> <u>Prospects</u>.

- Inform MDNR personnel at Washington and St. Francois State Parks of Big River basin displays and make them available for loan.
- Encourage Public Affairs Division to film an SMBSMA video, featuring Big River, for the "Missouri Outdoors" television series.
- Encourage St. Louis area media to join MDC on river surveys and organize a media float trip/educational event on Big River.
- Emphasize Big River in St. Louis County's "Gone Fishin" series' Ozark Float Fishing program and in MDC's "Fishing Opportunities Within an Hour of the Arch" presentations.
- Encourage St. Louis County to add a "Fishing the Big River Basin" slide presentation to their "Gone Fishin" series.
- Encourage St. Louis County to add a catfish fishing seminar geared to Ozark streams to their "Gone Fishin" series.

Objective 5.2: Educate the public on the value of healthy stream ecosystems and encourage advocacy on behalf of basin streams.

- Promote the establishment of a Big River Basin STREAM TEAM Association by holding an organizational workshop and periodic association meetings, as needed.
- Establish an annual Big River Days educational event for basin's school children.
- Encourage formation of additional STREAM TEAMs within the basin.
- Encourage and assist in expansion of Operation Clean Stream to major basin tributaries.
- Provide basin canoe liveries with MDC litter bags and other stream conservation information.
- Mail riparian landowners informational letters offering stream management services, followed by a telephone survey to obtain additional data on landowners' level of interest.
- Construct Stream Demonstration Area and Streams For The Future posters for Big River basin and distribute to farm supply stores, rural hardware stores, county and state agency offices.

Objective 5.3: Provide stream-oriented activities.

- Investigate the possibility of a festival on Big River, similar to Day on the River, that includes outdoor skills, food, and natural resource interpretation.
- Develop a cooperative program, sponsored by STREAM TEAMs, canoe liveries, and public agencies, to sponsor "first-time" canoe trips on Big River for urban families and other groups.
- Assist Operation Clean Stream in removing trash and encourage its expansion to major basin streams.
- Encourage St. Louis County's "Gone Fishin" program to conduct an annual float fishing trip on Big River.
- Involve public, especially STREAM TEAMs, in tree planting projects.